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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,286	04/26/2006	James Wells Carter	62941A	3416
35503 7590 03/24/2009 Union Carbide Chemicals and Plastics Technology Corporation P.O. Box 1967 Midland, MI 48641-1967				
			EXAMINER	
			SELLERS, ROBERT E	
			ART UNIT	PAPER NUMBER
			1796	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/575,286

Applicant(s)

CARTER ET AL.

Examiner

ROBERT SELLERS

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) 2, 4 and 7-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 5 and 6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-9 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SE-US)
Paper No(s)/Mail Date 28 August 2006
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claims 1 and 3-6, drawn to a method of enhancing the toughness of a coating on an article using a cyclohexyl-linked bis(epoxycyclohexane).

Group II, claim 2, drawn to a method of enhancing the toughness of a coating on an article using a cyclohexyl-linked bis(epoxycyclohexane) and a hydroxy functional reactant.

Group III, claim 7, a composition comprising a photoinitiator and a cyclohexyl-linked bis(epoxycyclohexane).

Group IV, claims 8 and 9, a composition comprising a thermally-activated initiator and a cyclohexyl-linked bis(epoxycyclohexane).

2. The inventions listed as Groups I to IV do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical feature. The special technical feature is the cyclohexyl-linked bis(epoxy cyclohexane) shown in European Patent No. 479,166 wherein HCAPLUS accession no. 1992:426320 (page 1, last IT, line 3, registry no. 141982-19-4 depicted on page 3) shows a cyclohexyl-linked bis(epoxycyclohexane) conforming to the claimed formula wherein R_1 and R_2 is $-O-C(=O)-$ and G_1 to G_{29} are hydrogen as denoted in claims 4 and 6, respectively.

Accordingly, the special technical feature does not make a contribution over the prior art, thereby validating a holding of lack of unity.

3. This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

The species are as follows:

a) The cyclohexyl-linked bis(epoxycyclohexane)s of the formula depicted in claim 1.

b) Contingent upon the election of Group II, item a) hereinabove and the hydroxy functional compounds.

c) Contingent upon the election of Group III, item a) hereinabove and the photoinitiators.

d) Contingent upon the election of Group IV, item a) hereinabove and the thermally-activated initiators.

Applicant is required, in reply to this action, to elect a single species to which the claims shall be restricted if no generic claim is finally held to be allowable. The reply must also identify the claims readable on the elected species, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Claims 1-9 are generic.

4. The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical feature for the reasons espoused with respect to the holding of lack of unity hereinabove.
5. During a telephone conversation with Joe R. Prieto on March 23, 2009, a provisional election was made with traverse to prosecute the invention of Group I and the first formula exhibited on page 8, line 8 of the specification. claims 1, 3, 5 and 6. Affirmation of this election must be made by applicant in replying to this Office action. Claims 2 and 7-9 are withdrawn from further consideration under 37 CFR 1.142(b) as being drawn to non-elected inventions. Claim 4 is withdrawn as directed to a non-elected formula of the cyclohexyl-linked bis(epoxycyclohexane).

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 3, 5 and 6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

6. There is no identification of the substituents for G_1 to G_{29} in the formula of claim 1 on page 2, lines 18-19. There is no indication of the groups for G_1 to G_9 and R_6 in the formula illustrated on page 3, line 19. Although certain compounds are listed on page 3, lines 16-26, there is no description of how the groups of the compounds correspond to the particular G_1 to G_{29} groups. G_{10} to G_{20} of the linking cyclohexyl moiety in the formula are specified on page 4, lines 7-8 and should be incorporated into the formula depicted on page 2, lines 18-19 and that of claim 1. G_1 to G_{29} include preferably hydrogen or methyl according to page 8, lines 3-4 which are the only enabled groups for G_1 to G_9 and G_{21} to G_{29} .

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3, 5 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. The actual structure for the formula of claim 1 is not clearly denoted in the absence of the substituents for G₁ to G₂₉.
8. The claimed method of enhancing the toughness of a coating on an article does not contain any affirmative process steps and therefore constitutes improper method claims. There are no steps which can be undertaken to enhance the toughness of the coating.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 5 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Rickert et al. Patent No. 6,437,045 or the Journal of Polymer Science: Part A: Polymer Chemistry article by Wang et al. or Nishida et al. Patent No. 5,187,198.

9. Rickert et al. (the equivalent of European Patent No. 1,099,730 designated as a X reference in the International Search Report and applied in the International Preliminary Report on Patentability both filed April 26, 2006) in column 17, Example 11 lines 35-43, epoxy compound 12) shows a cycloaliphatic diepoxide wherein the moieties linking the cyclohexyl group to the epoxycyclohexyl groups is $-C(=O)O-CH_2-$.

10. Wang et al. (page 2992, second column, Epo 4) or Nishida et al. (cols. 9-10, fifth depicted formula) show trimethylcyclohexylurethane-linked bis(epoxycyclohexane) with $-C(=O)O-CH_2-$ linking groups. Since the claimed method of enhancing a coating does not contain any affirmative process steps, the claims merely require the presence of an epoxy resin within the claimed formula as exhibited in the references.

Claims 1 and 6 are rejected under 35 U.S.C. 102(b or e) as being anticipated by European Patent No. 479,166 (102(b)) or Woods et al. Patent No. 6,916,890 (102(e)) or Ober et al. Patent No. 5,948,922 (102(b)).

11. The European patent according to HCAPLUS accession no. 1992:426320 (page 1, last IT, line 3, registry no. 141942-19-4 depicted on page 3), Woods et al. (col. 19, Example 2, ECCD(3)) or Ober et al. (col. 4, lines 36-46, structural formula (VII)) shows a cyclohexyl-linked bis(epoxycyclohexane) conforming to the claimed formula wherein R_1 and R_2 is $-O-C(=O)-$ and G_1 to G_{29} are hydrogen as denoted in claims 4 and 6, respectively. Woods et al. (col. 11, lines 9-19 discloses polyphenols. Ober et al. (col. 25, lines 46-55) teaches from 0.5% to 5% by weight of a polyethylene glycol, polypropylene glycol, polycaprolactone) diol or poly(oxybutylene) diol. The claimed lack of any method steps merely requires an epoxy resin within the claimed formula as illustrated in the references.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ober et al.

Ober et al. in column 5, lines 1-12, structural formula (XXV) exhibits an epoxy resin within the formula wherein the radicals linking the cyclohexyl group to the two epoxycyclohexyl groups are $-C(=O)O-C(R_1)(R_2)_{c \text{ and } d}-$ wherein R_1 and R_2 are hydrogen (col. 2, line 66 to col. 3, line 1) and c and d are both 1. Although a particular epoxy compound within the claimed formula is not exemplified, structural formula (XXV) of Ober et al. embraces that claimed. The claimed lack of any method steps merely requires an epoxy resin within the claimed formula as illustrated in the references.

Claims 1, 3, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent No. 51,311.

12. The European patent (page 2, lines 10-14) discloses a composition comprising a polyol and a cycloaliphatic diepoxide having the formula illustrated on page 3, lines 1-17 wherein R is cyclohexane (lines 16-17) and the groups linking R to the epoxycyclohexyl radicals are $-C(=O)OCH_2-$ (Note that the left-hand linking group is improperly depicted with an absence of an alkylene hydrogen.). Although the cyclohexane R group is not exemplified, the formula encompasses the claimed formula.

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/Robert Sellers/
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3/23/2009